



The Economic Importance of Aluminum Primary Processing and Production in Kentucky

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Executive Summary

Firms that are involved in the processing of aluminum in Kentucky make up a significant portion of the Kentucky economy. However, previous efforts to measure the size of these firms have focused exclusively on firms directly involved in the primary production of aluminum and have ignored firms processing aluminum for use in producing output. In contrast in this report we estimate the economic importance of all Kentucky plants involved in producing and processing aluminum. Using the methodology described in the paper, along with data from the U.S. Census Bureau's 2003 Annual Survey of Manufacturing, we report that:

- Plants involved in the production and processing of aluminum shipped output valued at approximately \$5.9 billion dollars in 2003. These firms added about \$2.6 billion in value to the raw material purchased, accounting for 2.4 percent of the gross state product in private industries in Kentucky in 2003.
- These plants employed over 15,000 workers and paid over \$614 million in wages and salaries. This amounts to a bit less than one percent of all wage and salary jobs in Kentucky, and a bit more than one percent of all wages and salaries earned in the state.
- The average earnings of workers involved in processing aluminum was \$39,500. This is 27 percent higher than the average earnings for all wage and salary workers in Kentucky.
- Workers in the aluminum processing industry paid over \$62 million in Kentucky state income and sales taxes and local government occupational taxes.

I. Introduction

Firms that are involved in the processing of aluminum in Kentucky make up a significant portion of the Kentucky economy. However, previous efforts to measure the size of these firms have focused exclusively on firms directly involved in the manufacturing of aluminum and have ignored firms that fabricate aluminum for use in producing output. In contrast in this report we estimate the economic importance of all Kentucky plants involved in processing aluminum. In the next section we describe the methodology we use to measure the size of aluminum processing in the state while in section III of the report we present our estimates of the economic importance of aluminum processing in Kentucky.

II Measuring Aluminum Processing in Kentucky

While it is relatively simple, given currently available data, to measure the economic importance of firms that manufacture aluminum in Kentucky, it is more difficult to measure the economic importance of firms that fabricate aluminum and then use fabricated aluminum to produce a final product. This is because the industrial classification scheme in the U.S. classifies plants based on their final output and not based on the materials used to produce the final output. Thus, data from a firm that fabricates aluminum for use in producing an aluminum boat will be combined and reported with data from a firm that produces fiberglass boats because both firms will be classified in the same industry—boat building. Therefore, for plants in industries other than the aluminum manufacturing industry we need some way to separate their data from the data for plants that do not process aluminum.

To begin with we obtained a list of all facilities in the Commonwealth that are involved in the processing of aluminum from the Office of Research and Information Technology in the

Kentucky Cabinet for Economic Development. After removing duplicate records and records for exclusively administrative facilities, we matched these records with establishment-level administrative data from the Unemployment Insurance program in Kentucky in order to obtain accurate industry and employment data. We then added up employment information for plants in our data that are in the same four-digit North American Industrial Classification System (NAICS) industry. This creates one record for each separate four-digit NAICS industry containing a plant in our original data.

We then drop all plants that are in the “Alumina and aluminum production and processing” industry (NAICS code 3313) since data for these plants can be obtained directly from published data. For the other industries we compute the ratio of the total employment in these industries in our data to the total employment in these industries in Kentucky as reported in the U.S. Census Bureau’s 2003 Annual Survey of Manufacturing (ASM). For industries where at least five percent of employment work in plants processing aluminum, we then multiply this ratio with other data items from the 2003 ASM in order to estimate the value of items such as total wages, value added and total value of shipments for plants in these industries in Kentucky. In the next section we present the results from our analysis.

III. Extent of Aluminum Processing in Kentucky

Figure 1 shows the location of aluminum processing plants in Kentucky. This figure makes two points. First, aluminum processing is pervasive in Kentucky. There are aluminum processing facilities in every region of the state, with the exception of the north-east corner. The second point is that one misses the true size and geographic diversity of the industry when focusing exclusively on the primary production of aluminum. As the map shows, there are only

three areas of the state where aluminum production plants are located, yet aluminum processing plants are spread throughout the Commonwealth.

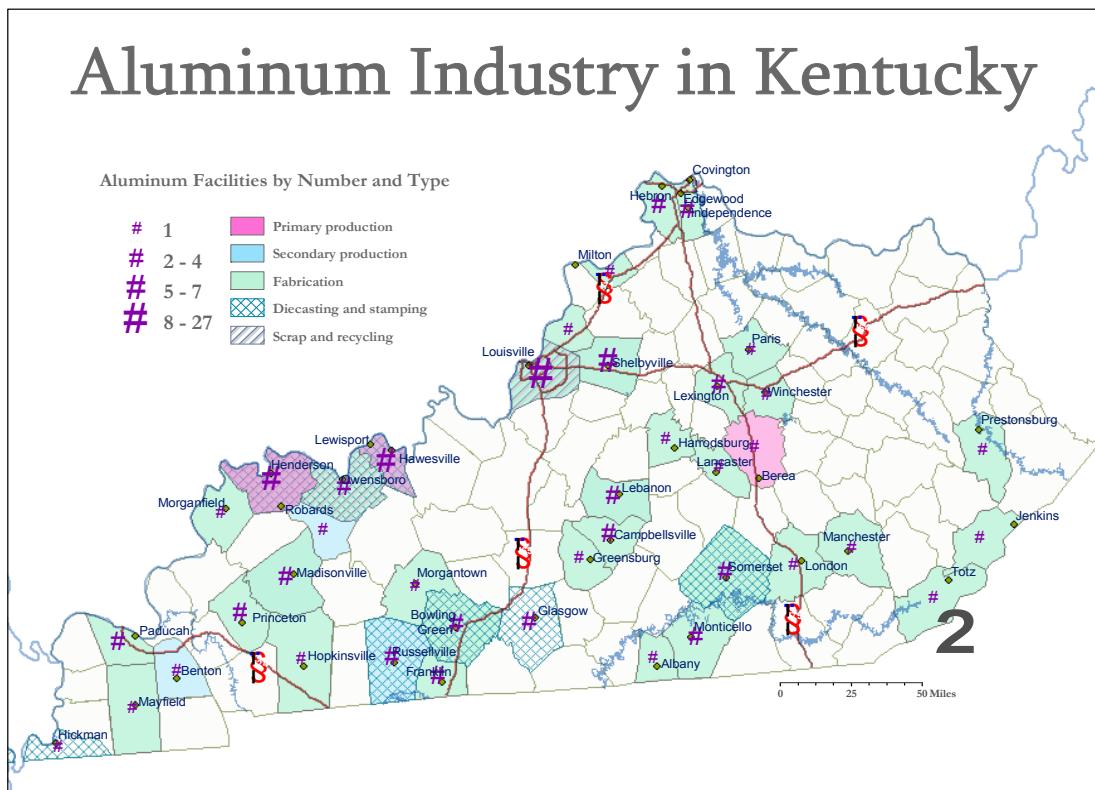


Figure 1: Aluminum Industry in Kentucky

Table 1 contains statistics for the aluminum processing plants in Kentucky. This table shows that aluminum processing plants in Kentucky shipped almost \$5.9 billion dollars in product in 2003, adding \$2.6 billion in value added to the materials purchased. Value added is the best measure of industrial output, and we can use these figures to estimate aluminum's share of all output in the state. In 2003 the Gross State Product in Kentucky was \$128.5 billion, of which \$109.4 billion originated from private industry. Hence, aluminum production and processing plants account for approximately 2.4 percent of the total amount of goods and

services produced in the state. Of this \$2.6 billion in total output, almost \$1.0 billion, or 36 percent, was produced by plants classified in industries other than 3313, again demonstrating the importance of taking these other plants into account when examining the aluminum industry. In addition, plants engaged in aluminum processing employed over 15,000 workers and paid wages

Table 1: Statistics for Aluminum Processing Plants in Kentucky

Industry Group	Number of establishments	Total Employment	Total Payroll	Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total Capital Expenditures (\$1,000)
Alumina & aluminum production & processing	18	5,572	259,226	1,679,342	1,838,550	3,473,770	67,862
Foundries	10	2,945	113,223	302,100	458,765	763,143	15,520
Miscellaneous durable goods merchant wholesalers	3	200	5,777	NA	NA	66,137	NA
All other manufacturing	72	6,840	236,378	653,422	912,506	1,570,581	52,548
Total	103	15,557	614,604	2,634,864	3,209,821	5,873,631	135,930

of over \$614 million, which resulted in at least \$54 million in tax revenue for Kentucky state government, and \$8 million in occupational taxes to local governments around the state. Finally, these plants invested \$136 million in new capital equipment in 2003.